



PATENT
455610-2620.1

HIGH BANDWIDTH REAL TIME OSCILLOSCOPE

Cross-Reference To Related Applications

This application claims the benefit of U.S. Provisional Patent Application 60/420,937 filed October 24, 2002, the entire contents of which are incorporated herein by reference.

Field of the Invention

The present invention relates to a high bandwidth real-time digital sampling oscilloscope (DSO) incorporating mixing (or heterodyning) to increase the bandwidth of a typical oscilloscope design with limited bandwidth.

Background of the Invention

A digital sampling oscilloscope (DSO) is the primary tool utilized by engineers to view signals in electronic circuitry. As signals get ever faster, it is very beneficial to have DSOs capable of digitizing, displaying and analyzing these faster signals. The capability of a DSO to digitize fast signals is determined by its bandwidth and sample rate. The sample rate is the number of samples points taken of a waveform in a given amount of time and is inversely proportional to the sample period – the time between samples.

If a sinusoidal frequency sweep is performed from DC up to higher frequencies, the bandwidth is defined as the frequency at which the signal displayed on the DSO screen is approximately 30% smaller than the input sine-wave.

Since one of the uses of the DSO is to design and analyze new electronic devices, high end DSOs must operate at speeds much higher than the present state of the art in electronics. These speeds are generally unachievable through brute-force methods, such as simply providing

*Okay to enter this into file specification filed 10-17-00
for 10-20-00*